

**REMARKS**

In response to the Final Office Action dated January 12, 2007, claims 1-34 are canceled, without prejudice, and claims 35-44 are newly added. Claims 35-44 are now active in this application. No new matter has been added. New claim 35 is supported by, at a minimum, original claims 27, 31, 34, embodiment 1, FIGs. 1, 2, 7, and the text associated with the figures. New claim 36, is supported, at a minimum, by original claim 28. New claim 37 is supported by, at a minimum, original claim 29. New claim 38 is supported by, at a minimum, original claim 29. New claim 39 is supported by, at a minimum, original claim 29. New claim 40 is supported by, at a minimum, original claims 9, 13, 16, embodiment 1, FIGs. 1, 2, 7, and the text associated with the figures. New claim 41 is supported by, at a minimum, original claim 10. New claim 42 is supported by, at a minimum, original claim 11. New claim 43 is supported by, at a minimum, original claim 12. New claim 44 is supported by, at a minimum, original claims 14 and 15.

**Claims 9, 10, 12-16, and 18 were rejected under 35 U.S.C. § 102(e)** as being allegedly anticipated by Funk et al., U.S. Patent Application Publication 2005/0171627, hereinafter Funk '627. Applicant respectfully submits that this rejection is moot because these claims have been cancelled.

In the interests of compact prosecution, Applicant will distinguish the new claims over the cited art.

Independent claim 35 recites, in pertinent part, “**dividing** the plurality of pieces of process data for the respective process parameters and **for respective steps** of a process recipe for operating the plasma etching apparatus . . . wherein the plurality of pieces of process data includes a gas pressure and plasma emission voltage in a reaction chamber; a flow rate of helium gas flowing between a lower electrode and a wafer; and powers of a progressive wave and a

reflected wave of a high frequency power supplied from a high frequency power supply to the lower electrode.” Emphasis added.

Thus, it is possible to precisely ascertain the operation status of the semiconductor production apparatus from the divided data obtained by dividing the process data for the respective steps or from a statistical value thereof.

Anticipation under 35 U.S.C. § 102 requires that “each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference.” *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ 2d 1051, 1053 (Fed Cir. 1987). At a minimum, the cited prior art does not disclose (expressly or inherently) the above recited limitation.

Funk ‘627 merely discloses dividing process data of the semiconductor production apparatus according to process parameters.

The Office Action, at pages 3 and 4, asserts Funk ‘627 discloses operations that “are analogous” to a “dividing means” at paragraphs [0089] through [0093]. However, these paragraphs merely disclose dividing process data of the semiconductor production apparatus according to process parameters:

[0089] FIG. 2 shows a simplified view of a flow diagram for a monitoring process for processing tools in a semiconductor processing system in accordance with one embodiment of the present invention. The software and associated GUI screens provides a procedure for monitoring one or more processing tools in the system. The flow chart illustrates an exemplary Control Strategy procedure that is executed in the monitoring process. Procedure 200 starts in 210.

[0090] Procedure 200 can be performed for each production step being performed by a processing tool in the semiconductor processing system. A production step is an etching process, a deposition process, a diffusion process, a cleaning process, a measurement process, a transfer process, or other semiconductor manufacturing process. Strategies define what happens during a set of sequences on the processing tool. Strategies can define a set of sequences for a single wafer, a single tool, a single lot, or a combination of tool activities. A strategy can include

a combination of processing activities, measurement activities, pre-conditioning activities, pre-measurement activities, and post-measurement activities. Each part (group of activities) in a strategy is called a plan.

[0091] Strategies are associated with a context. Context information can be used to associate a given operation with another operation. In particular, the context information associates a process step or recipe with one or more strategies and/or plans.

[0092] In 215, a control strategy is determined based on a process context. The process context can be dependent upon the production step being performed and the tool being monitored. The context determines which strategy and/or plan is executed for a particular process recipe. For example, to associate a control strategy with a process type such as "dryclean", the context for the strategy must contain the context term "dryclean".

[0093] The control strategy can be a holder of plans. A control strategy and the associated plans "control" which sensors are used, how they are configured, which data is collected, and how the data is preprocessed.

Hence, Funk '627 does not teach or suggest dividing the plurality of pieces of process data for the respective process parameters and **for respective steps** of a process recipe for operating the plasma etching apparatus, as recited by independent claim 35.

Additionally, Funk '627 does not teach or suggest all of the specific pieces of process data which are recited by independent claim 35: (1) gas pressure in a reaction chamber, (2) plasma emission voltage in the reaction chamber, (3) a flow rate of helium gas flowing between a lower electrode and a wafer, (4) power of a progressive wave of a high frequency power supplied from a high frequency power supply to the lower electrode, and (5) a power of a reflected wave of the high frequency power supply to the lower electrode.

Thus, Applicants respectfully submit that independent claim 35 is not anticipated by Funk '627.

The other cited publications do not obviate the deficiencies of Funk '627.

Under Federal Circuit guidelines, a dependent claim is nonobvious if the independent claim upon which it depends is allowable because all the limitations of the independent claim are contained in the dependent claims, *Hartness International Inc. v. Simplimatic Engineering Co.*, 819 F.2d at 1100, 1108 (Fed. Cir. 1987). Accordingly, as independent claim 35 is patentable for the reasons set forth above, it is respectfully submitted that all claims dependent thereon are also patentable.

Thus, it is respectfully submitted that dependent claims 36-39 are also allowable, for at least the same reasons as independent claim 35.

Applicants respectfully submit that independent claim 40 is distinguished over the cited publications for reasons similar to independent claim 35.

Applicants respectfully submit that dependent claims 41-44 depend from independent claim 40, and therefore are also allowable, for at least the same reasons as independent claim 40.

Accordingly, it is urged that the application, as now amended, is in condition for allowance, an indication of which is respectfully solicited. If there are any outstanding issues that might be resolved by an interview or an Examiner's amendment, Examiner is requested to call Applicants' attorney at the telephone number shown below.

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 500417 and please credit any excess fees to such deposit account.

Respectfully submitted,

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